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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,294	02/11/2005	Mitsuhiro Yuasa	101249.55938US	6396
23911 7590 12/05/2007 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER HESS, MICHAEL THOMAS	
			ART UNIT 3729	PAPER NUMBER
			MAIL DATE 12/05/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/524,294

Applicant(s)

YUASA, MITSUHIRO

Examiner

Michael T. Hess

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 3-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/25/2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 3 as currently amended contains subject matter not in the specification as originally filed. The written description, drawings and original claims do not disclose the method steps of Claim 3, as amended, and the order required by the steps in any single embodiment. Specifically, the

specification does not disclose in one embodiment: forming a first conductive film on a semiconductor substrate; forming a dielectric film on first conductive film; etching said dielectric film; embedding a first sacrificial layer where said dielectric films has been etched away; forming a second sacrificial layer on said dielectric film and first sacrificial layer; etching said second sacrificial layer everywhere except a plurality of portions; embedding a second conductive film where said second sacrificial layer has been etched away; and removing first and second sacrificial layers by etching. Therefore, Applicants have added new matter to the Claims of the Application that was not disclosed in the originally filed Specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention when the application was filed.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,652,557 to Ishikawa, already of record.

#### **In Reference to Claim 3**

Ishikawa teaches:

a method for fabricating a waveguide, comprising the steps of:

forming a first conductive film (Ref. # 4) on a semiconductor substrate (Ref. # 1, Col. 12, Lines 18-20, semiconductor substrate; see Figs. 4(a)-4(b));

forming a dielectric film (Ref. # 5) on said first conductive film (ref. # 4; see Fig. 4(c));

etching said dielectric film (Ref. # 5; Figs. 4(c)-4(d); Col. 13, Lines 16-17) to form a transmission line (Fig. 4(d));

embedding a first sacrificial layer (Ref. # 20, protective film is considered a sacrificial layer as it is etched away) in an area where said dielectric film (Ref. # 5) has been etched away (Fig. 8(a), see Col. 14, Lines 45-46, discussing embodiment 3 is a modification of embodiment 1 starting after Fig. 4(d));

forming a second sacrificial layer (Ref. # 5', although this film is a dielectric film, it is considered a sacrificial layer because it is mostly removed and facilitates the conductive layer 3) on said dielectric film (Ref. # 5) and said first sacrificial layer (Ref. # 20, see Fig. 8(b) wherein layer 5' covers both layer 20 and layer 5);

etching away said second sacrificial layer (Ref. 5') everywhere except a plurality of portions thereof (Fig. 8(c), Col. 14, Lines 51-53, etching, so as to remove, layer 5' everywhere except the bottom of groove 10a; the bottom of groove 10a is considered a plurality of portions that are touching each other);

embedding a second conductive film (Ref. # 3) in an area where said second sacrificial layer (Ref. # 5') has been etched away (Ref. # 10a is the area where second sacrificial layer was etched away; Fig. 8(e), Col. 14, Lines 57-59); and

removing a said first (Ref. # 20) and second (Ref. # 5) sacrificial layers by etching away said first (Fig. 8(d), Col. 14, Lines 53-56, immersing in resist removal solutions is considered a form of etching) and second (see etching away second sacrificial layer above) sacrificial layers.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of U.S. Patent No. 6,611,237 to Smith (Smith), already of record.

In Reference to Claim 4

Ishikawa teaches:

a method for fabricating a waveguide as claimed in claim 3 (see 35 U.S.C. § 102(b) rejection of Claim 3 above).

However Ishikawa fails to teach:

wherein a Micro-Electro-Mechanical System(MEMS) circuit is formed in said substrate prior to forming said first conductive film.

Smith teaches:

wherein a Micro-Electro-Mechanical System (MEMS) circuit (Cols. 3-4, Lines 53-10, discussing making a micro switch through a MEMS process) is formed in said substrate prior to forming said first conductive film (Cols. 2-3, Lines 64-1, discussing integration of electronic devices directly into substrates) in order to reduce material used, reduce costs and increase performance (Col. 2, lines 61-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the step of fabricating a MEMS circuit into the substrate as in Smith in the method for fabricating a waveguide of Ishikawa in order to increase performance and reduce production costs of waveguides.

### ***Response to Arguments***

8. Applicant's arguments, see REMARKS, filed 10/25/2007, with respect to 35 U.S.C. § 112, ¶ 2 of Claim 4 have been fully considered and are persuasive. The 35 U.S.C. § 112, ¶ 2 rejection of Final Office Action dated 08/29/2007 has been withdrawn.
9. Applicant's arguments with respect to the 35 U.S.C. § 103(a) rejections of Claims 3 and 4 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Hess whose telephone number is 571-270-1994. The examiner can normally be reached on M-Th, 6:30AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MTH *MTH* 11.21.01



**PETER VO  
SUPERVISORY PATENT EXAMINER  
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